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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/651,680

08/28/2003

Sung Q. Lee

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11/30/2005

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EXAMINER

LARKIN, DANIEL SEAN

ART UNIT

PAPER NUMBER

2856

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/651,680	Applicant(s) LEE ET AL.	
	Examiner Daniel S. Larkin	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, and 7-9 is/are rejected.
- 7) ☒ Claim(s) 3-6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 3 are objected to because of the following informalities:

Re claim 3, claim lines 1 and 2: The phrase "the actuating means" lacks antecedent basis.

Re claim 8, claim line 2: The term "Piezo" should be corrected to read -- piezo --. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,189,374 (Adderton et al.) in view of US 5,652,377 (Yagi).

With respect to the limitations of claims 1 and 9, the reference to Adderton et al. discloses an apparatus and method for scanning a sample surface, comprising: a sensing means (30) for sensing a sample surface (28) based on an amplitude variation in a resonant frequency of the sensing means by keeping a uniform distance from the sample; a frequency transforming means for transforming the sensed signal in the sensing means (30) to a first signal in the form of frequency, col. 12, lines 7-9; a frequency combining means (68) for combining the first signal and a second signal

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outputted from a frequency generator (66) to generate a combined signal, wherein the second signal is identical to the resonant frequency and is a higher frequency compared to the first signal; and an single actuator (36) for actuating the sensing means in response to the first signal which is a low frequency compared to the second signal and providing the combined signal to the sensing means to actuate the sensing means selectively at the second signal, col. 11, lines 63-67, the single actuator to oscillate a cantilever coupled to the single actuator with the second signal that is separated from the combined signal, wherein the apparatus scans the sample surface in a non-contact mode, col. 10, line 34.

The reference to Adderton et al. fails to disclose that the sample is moved in the X-Y direction. The reference to Yagi discloses a scanning method with scanning probe microscope, comprising a sensing means; an actuator (5); and means (8) for moving a sample (3) in an X and Y direction. Modifying the teaching of Adderton et al. to provide means for moving the sample in an X-Y direction would have been obvious to one of ordinary skill in the art as a means of improving the scanning accuracy of the invention by allowing more precise placement of the sample with respect to the scanning tip.

With respect to the limitation of claim 2, the reference to Adderton et al. discloses measuring amplitude variation of a cantilever, which represents the displacement gap between the tip and the sample. The reference further discloses a feedback loop to maintain the force constant between the sample and the tip.

With respect to the limitation of claim 7, the reference to Yagi discloses that an X-Y scanner is placed under the sample.

With respect to the limitations of claim 8, the reference to Adderton et al. discloses that the actuator (36) is a piezoelectric element.

Response to Arguments

4. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

5. The following is a statement of reasons for the indication of allowable subject matter:

Prior art was not relied upon to reject claims 3-6 because the prior art fails to teach and/or make obvious the following:

Claim 3: Providing an apparatus whereby an actuator functions as a low pass filter by responding to a first signal in combination with all of the limitations of base claim 1.

Claims 4-6: Providing an apparatus comprising a sensing unit attached to a predetermined area of a cantilever for sensing a sample surface in combination with all of the remaining limitations of the claim and all of the limitations of base claim 1.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Larkin whose telephone number is 571-272-2198. The examiner can normally be reached on 8:00 AM - 5:00 PM Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel Larkin
AU 2856
23 November 2005



DANIEL S. LARKIN
PRIMARY EXAMINER